

## Claims

What is claimed is:

1. A method to facilitate the update of a plurality of user interface categories utilizing a single client application program, the method including:

at a first computer system,

generating a user interface data message wherein the user interface data message includes the plurality of user interface categories and the single client application program, wherein the single client application program executes at a second computer system, wherein each user interface category includes a user interface element;

communicating the user interface data message from the first computer system to the second computer system;

receiving a user interface update message, at the first computer system, wherein the user interface update message includes an update to the plurality of user interface categories; and

communicating the user interface update message from the first computer system to the second computer system to enable the single client application program, at the second computer system, to update the plurality of user interface categories.

2. The method of claim 1, wherein the first computer system comprises a server and the second computer system comprises a client.
3. The method of claim 1, wherein the single client application program, at the second computer system, communicates the update to a script and the script, in turn, updates the user interface element.
4. The method of claim 1, including, at the second computer system, generating a user interface element table wherein the user interface element table includes a call back function script and subscription subjects for each user interface element.
5. The method of claim 4, wherein the single client application program, at the second computer system, reading the user interface element table and invoking the appropriate call back function script.
6. The method of claim 5, wherein the call back function script updates the user interface element with a display object model method.
7. The method of claim 1, wherein the single client application program populates a browser array with a name value pair for the user interface element.
8. The method of claim 7, wherein the single client application program communicates the user interface update message to a script, and the script in

turn updates the user interface element, wherein the script reads a name value pair from the browser array.

9. The method of claim 1, wherein each user interface element is constructed from a text embedded with tags.
10. The method of claim 9, wherein the text embedded with tags is implemented as a Special Generalized Markup Language (SGML).
11. The method of claim 10, wherein the SGML is a Hypertext Markup Language (HTML).
12. The method of claim 10, wherein the SGML is Extensible Markup Language (XML).
13. The method of claim 10, wherein a Simple Object Access Protocol (SOAP) defines a messaging framework for transferring the user interface data message.
14. The method of claim 1, wherein the user interface data message further comprises an at least one of a plurality of Style Sheets.
15. The method of claim 14, wherein the at least one of a plurality of style sheets is a Cascading Style Sheet.

16. The method of claim 1, wherein the single client application program operates under a browser.
17. The method of claim 16, wherein the single client application program is a Java applet.
18. The method of claim 1, wherein the script operates under a browser.
19. The method of claim 1, wherein the single client application program updates an at least one of a plurality of user interface categories.
20. A method to facilitate updating a plurality of user interface categories utilizing a single client application program, the method including:
- at a computer system,
  - receiving a user interface data message from a further computer system, wherein the user interface data message includes the plurality of user interface categories and the single client application program,
  - wherein the single client application program executes at the computer system, wherein each user interface category includes a user interface element; and, at the computer system, a single client application program
  - receiving a user interface update message from the further computer system; the single client application program

updating the plurality of user interface categories.

21. The method of claim 20, wherein the single client application program is an MS Com object.

22. A method to facilitate receiving a user interface update from a plurality of user interface categories utilizing a single client application program, the method including:

at a first computer system,

generating a user interface data message wherein the user interface data message includes the plurality of user interface categories and the single client application program, wherein the single client application program executes at a second computer system, wherein each user interface category includes a user interface element;

communicating the user interface data message from the first computer system to the second computer system; and

at the first computer system,

receiving a user interface update message from the second computer system, wherein the user interface update message is generated at the second computer system by the user interface element that communicates a user interface update to the single client application

program, the single client application program communicating the user interface update message to the first computer system.

23. A method to facilitate communication of a user interface update from a plurality of user interface categories, utilizing a single client application program, the method including:

at a computer system,

receiving a user interface data message from a further computer system, wherein the user interface data message includes the plurality of user interface categories and the single client application program, wherein the single client application program executes at the computer system, wherein each user interface category includes a user interface element;

at the computer system, a user interface element

communicating the user interface update to the single client application program; and the single client application, in turn,

communicating the user interface update message to the further computer system.

24. A system to facilitate an update to a plurality of user interface categories utilizing a single client application program, the system comprising:

an agent process, at a first computer system, that communicates a user interface data message to a second computer system wherein the user interface data message includes the single client application program and the plurality of user interface categories, wherein the single client application program executes at the second computer system, wherein the user interface category includes a user interface element; and

a communication process, at the first computer system, that communicates a user interface update message to the agent process;

wherein the user interface update message includes an update for the plurality of the user interface categories, and wherein the agent process, in turn, is adapted to communicate the user interface updates message to the single client application program, at the second computer system, the single client application program is adapted to update the plurality of user interface categories.

25. A system to facilitate updating a plurality of user interface categories, utilizing a single client application program, the system comprising:

a computer system  
to receive a user interface data message from a further computer system, wherein the user interface data message includes the single client application program and the plurality of user interface categories, wherein each user interface category includes a user interface element;

the single client application program, at the computer system, to receive an interface update message from the further computer system;

the single client application to update the plurality of user interface categories.

26. A system to facilitate reception of an update from a plurality of user interface categories utilizing a single client application program, the system comprising:

an agent process, at a first computer system, to communicate a user interface data message to a second computer system wherein the user interface data message includes the single client application program and a plurality of user interface categories, wherein each user interface category includes a user interface element; and

the agent process, in turn, to receive a user interface update message from the single client application program wherein the user interface update message is generated, at the second computer system, by a user interface element adapted to communicate an update to the single client application program,

wherein the agent process is to communicate the user interface update message to a communication process at the first computer system.



27. A system to facilitate communication of an update from a plurality user interface categories utilizing a single client application program, the system comprising:

a computer system to receive a user interface data message from a further computer system wherein the user interface data message includes the single client application program and the plurality of user interface categories, wherein each user interface category includes a user interface update element;

the user interface element to communicate an update to the single client application program; and

the single client application program to communicate the user interface update message to the further computer system.

28. A method to facilitate communication of an update to a plurality of categories that utilizes a single client application program, the method comprising:

at a primary computer system,

multicasting a user interface update message wherein the user

interface update message is identified with a subject;

at a secondary computer system,

receiving the user interface update message;

communicating the user interface update message to a tertiary computer system wherein the tertiary computer system is listening for the user interface update message wherein the user interface update message is identified by the said subject;

at the tertiary computer system, a single client application program receiving the user interface update message; the single client application program in turn updating the plurality of user interface categories, wherein the plurality of user interface categories listens to the subject, wherein each category includes a user interface element.

29. A method to facilitate communication of an update from a plurality of categories that utilizes a single client application program, the method comprising:

at a source computer system, a user interface element, in a category, communicating an update to the single client application program wherein the update is identified with a subject; the single client application program, in turn, communicating the user interface update message to an intermediary computer system;

at the intermediary computer system,  
receiving the user interface update message;  
multicasting the user interface update message to a destination  
computer system; and  
at the destination computer system,  
receiving a user interface update message.

30. A system to facilitate the update of a plurality of user interface categories  
utilizing a single client application program, the system comprising:

a first means, at a first computer system, for communicating a user  
interface data message to a second computer system wherein the user  
interface data message includes the single client application program and  
the plurality of user interface categories, wherein the single client  
application program executes at the second computer system, wherein  
each user interface category includes a user interface element; and

a second means, at the first computer system, for communicating a  
user interface update message to the first means, wherein the user  
interface update message includes an update for the plurality of  
categories,

the first means further for communicating the user interface update message to the single client application program, at the second computer system, the single client application program for updating the plurality of categories.

31. The system of claim 30, wherein the single client application program is a Java applet.
32. The system of claim 30, wherein each user interface element is constructed from a text embedded with tags.
33. The system of claim 30, including generating a user interface element table that includes a call back function script and subscription subjects for each user interface element.
34. A machine readable medium storing a sequence of instructions that, when executed by the machine, cause the machine to:
  - at a first computer system,
  - generate a user interface data message wherein the user interface data message includes the plurality of user interface categories and the single client application program, wherein the single client application program executes at a second computer system, wherein each user interface category includes a user interface element;

communicate the user interface data message from the first computer system to the second computer system;

receive a user interface update message, at the first computer system, wherein the user interface update message includes an update to the plurality of user interface categories; and

communicate the user interface update message from the first computer system to the second computer system to enable the single client application program, at the second computer system to update the plurality of user interface categories.

35. A machine readable medium storing a sequence of instructions that, when executed by the machine, cause the machine to:

at a computer system,

receive a user interface data message from a further computer system, wherein the user interface data message includes the plurality of user interface categories and the single client application program,

wherein the single client application program executes at the computer system, wherein each user interface category includes a user interface element; and, at the computer system, a single client application program

receive a user interface update message from the further computer system; the single client application program

update the plurality of user interface categories.